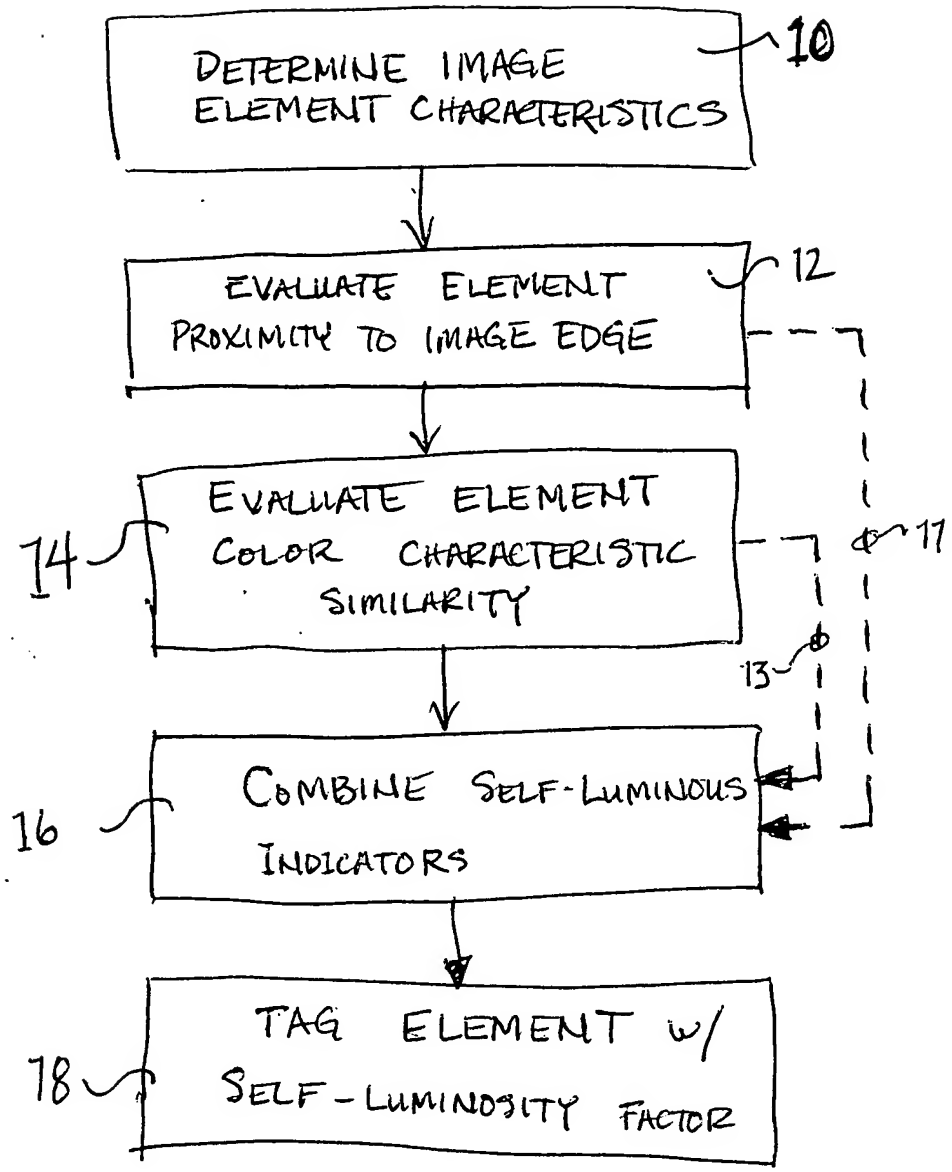

DETERMINE IMAGE ELEMENT CHARACTERISTICS
10
EVALUATE ELEMENT PROXIMITY TO IMAGE EDGE
12
EVALUATE ELEMENT COLOR CHARACTERISTIC SIMILARITY
14
17
13
COMBINE SELF-LUMINOUS INDICATORS
16
TAG ELEMENT W/ SELF-LUMINOSITY FACTOR
18

FIG. 1A

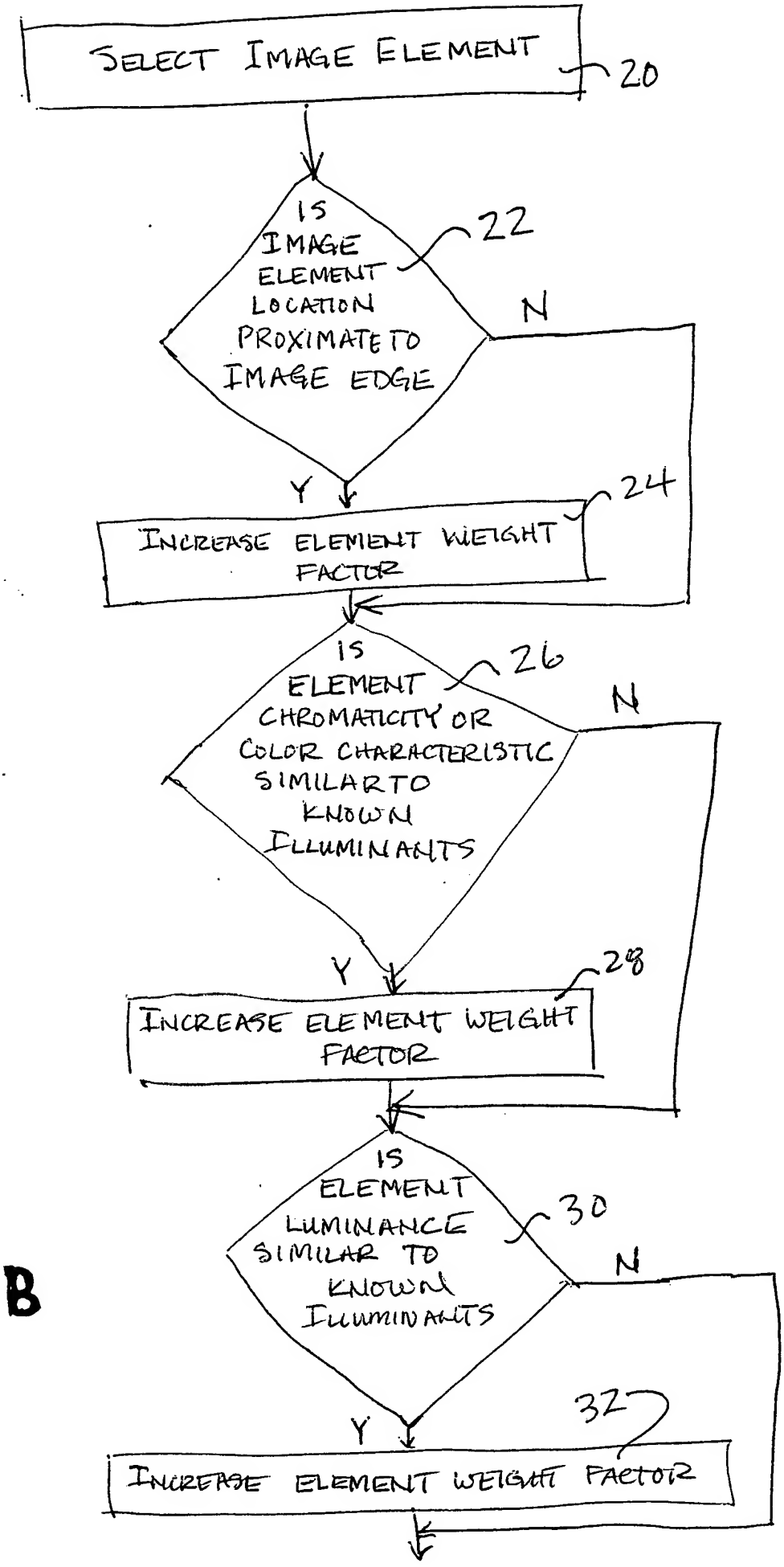

SELECT IMAGE ELEMENT
20
IS IMAGE ELEMENT LOCATION PROXIMATE TO IMAGE EDGE
22
N
Y
INCREASE ELEMENT WEIGHT FACTOR
24
IS ELEMENT CHROMATICITY OR COLOR CHARACTERISTIC SIMILAR TO KNOWN ILLUMINANTS
26
N
Y
INCREASE ELEMENT WEIGHT FACTOR
28
IS ELEMENT LUMINANCE SIMILAR TO KNOWN ILLUMINANTS
30
N
Y
INCREASE ELEMENT WEIGHT FACTOR
32

FIG. 1B

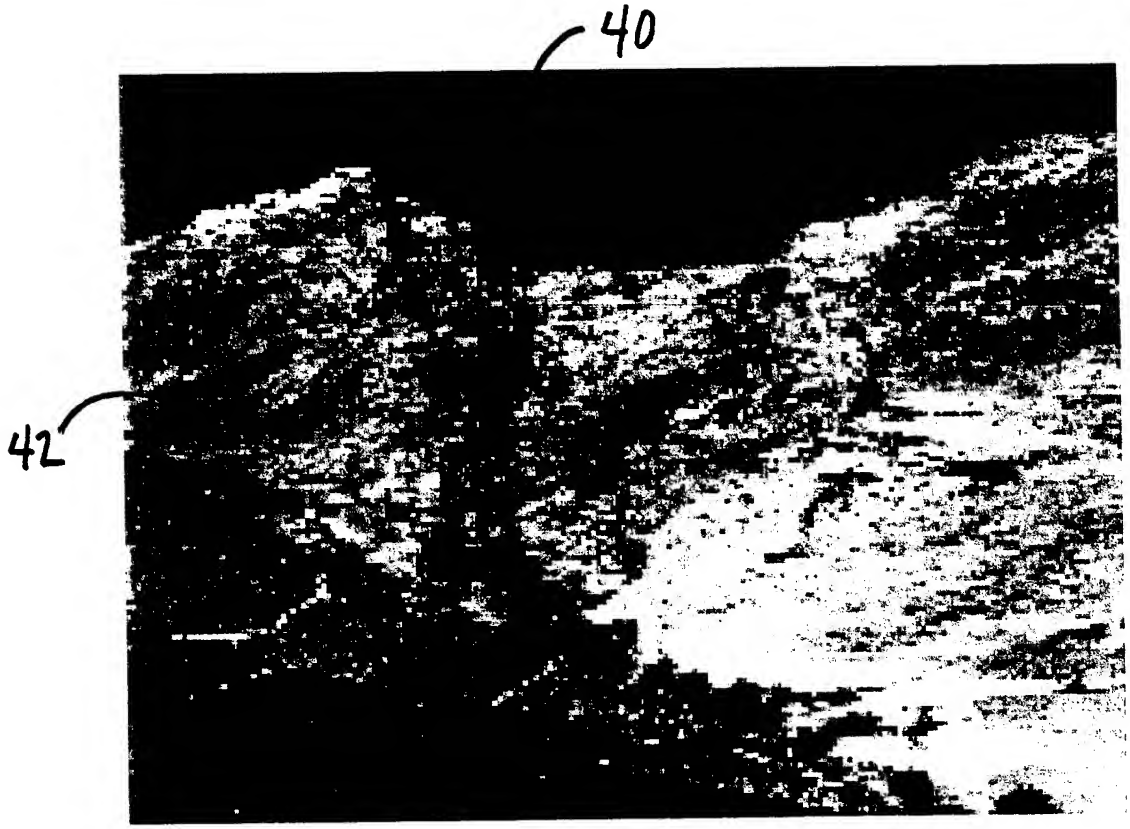


FIG. 2

p(sky | pos)

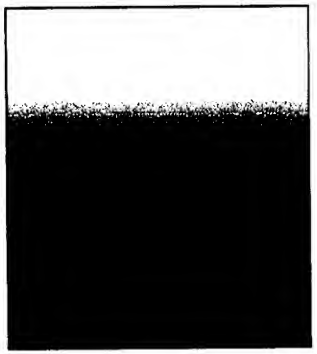


Fig. 3a.

p(sky | xy)

Fig. 3b

p(sky | Y)

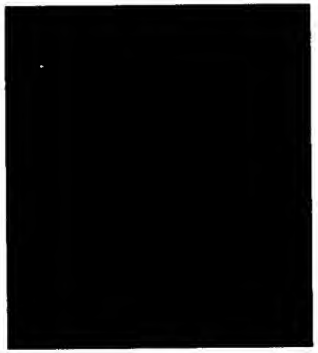


Fig. 3c

p(sky | xy,Y,pos)

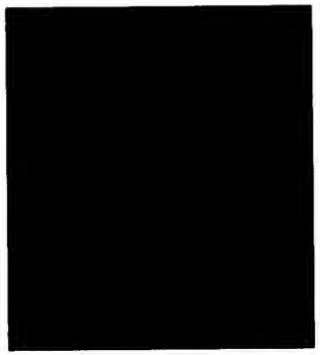


Fig. 3d

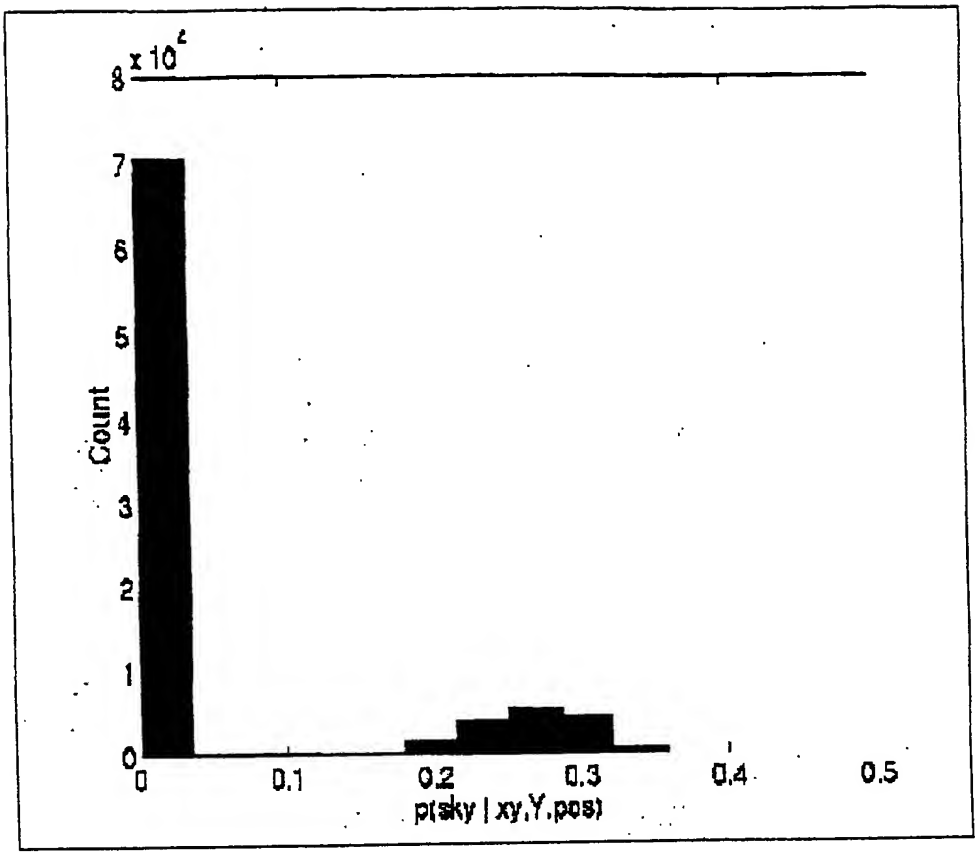


Fig. 4

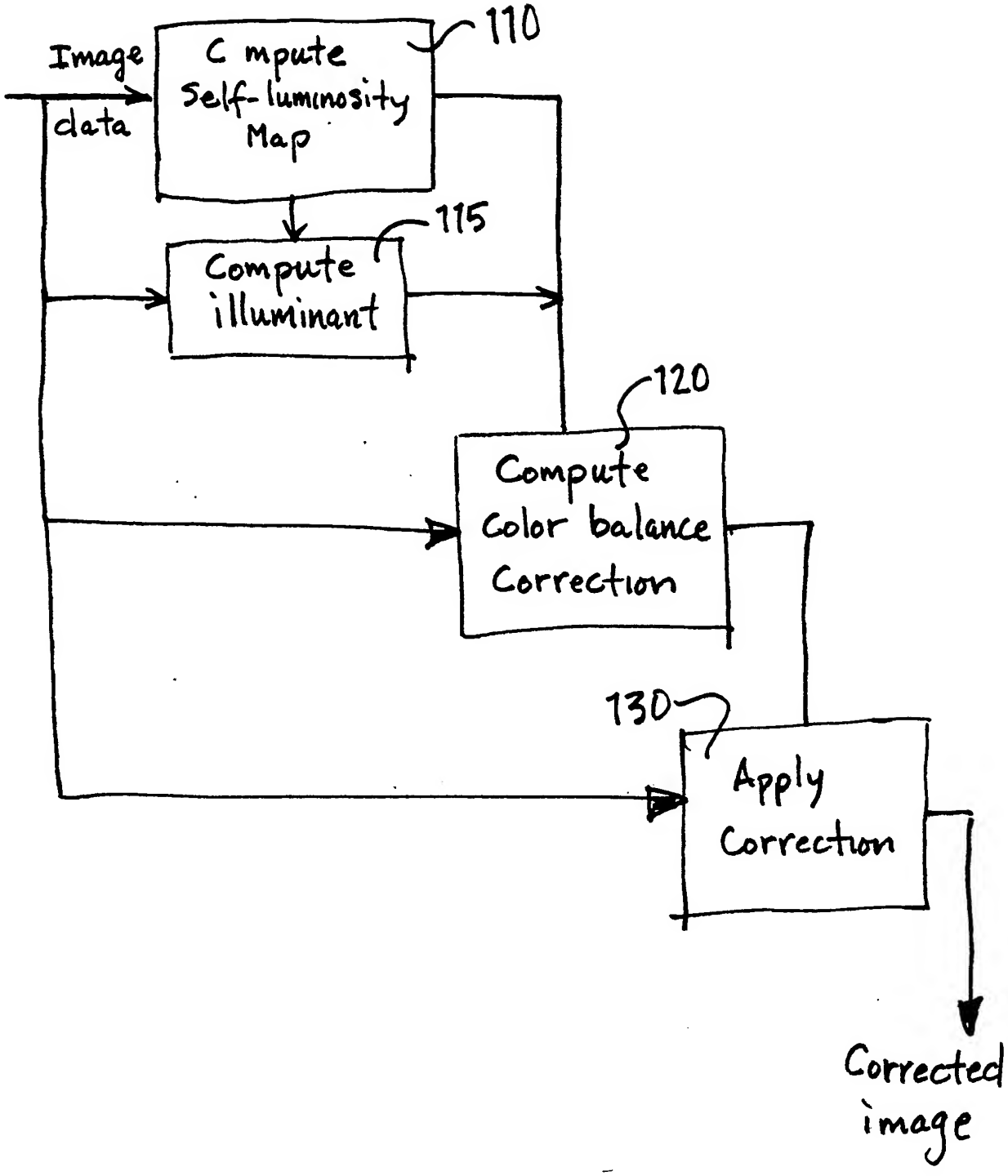
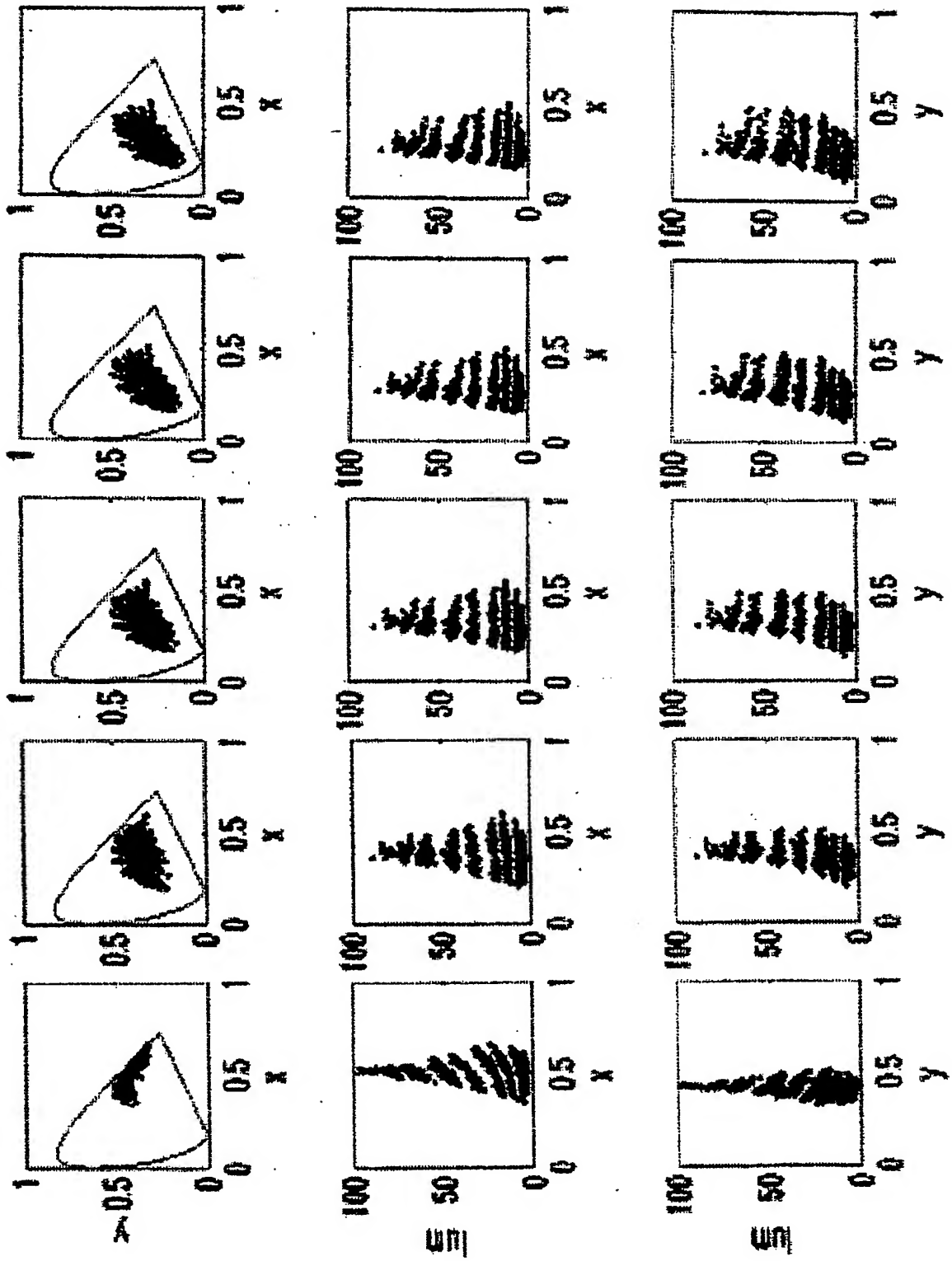


Image data
Compute Self-luminosity Map
110
Compute illuminant
115
Compute Color balance Correction
120
Apply Correction
130
Corrected image

FIG. 5

Fig. 6



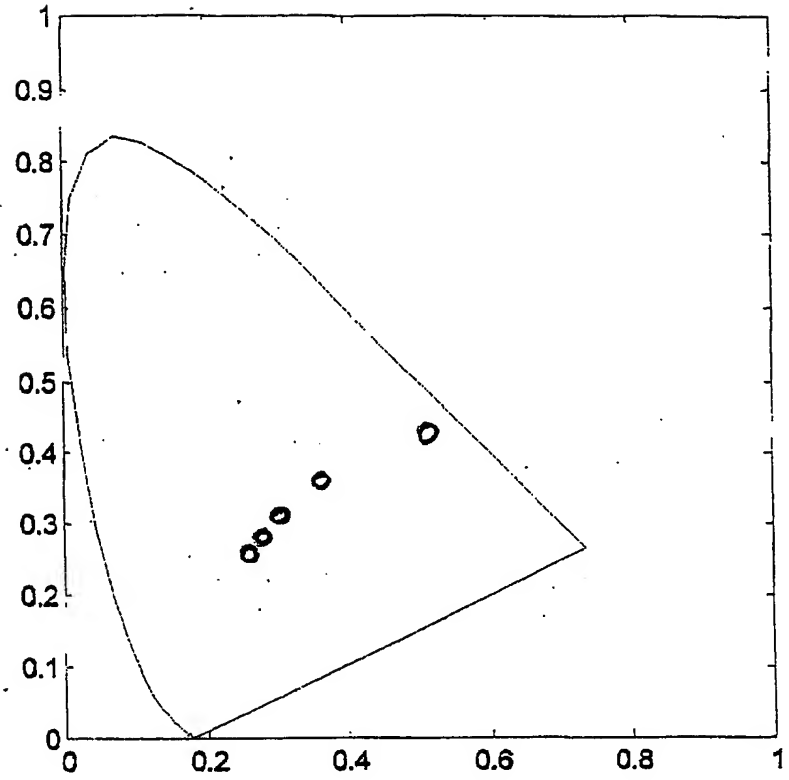


Fig. 7

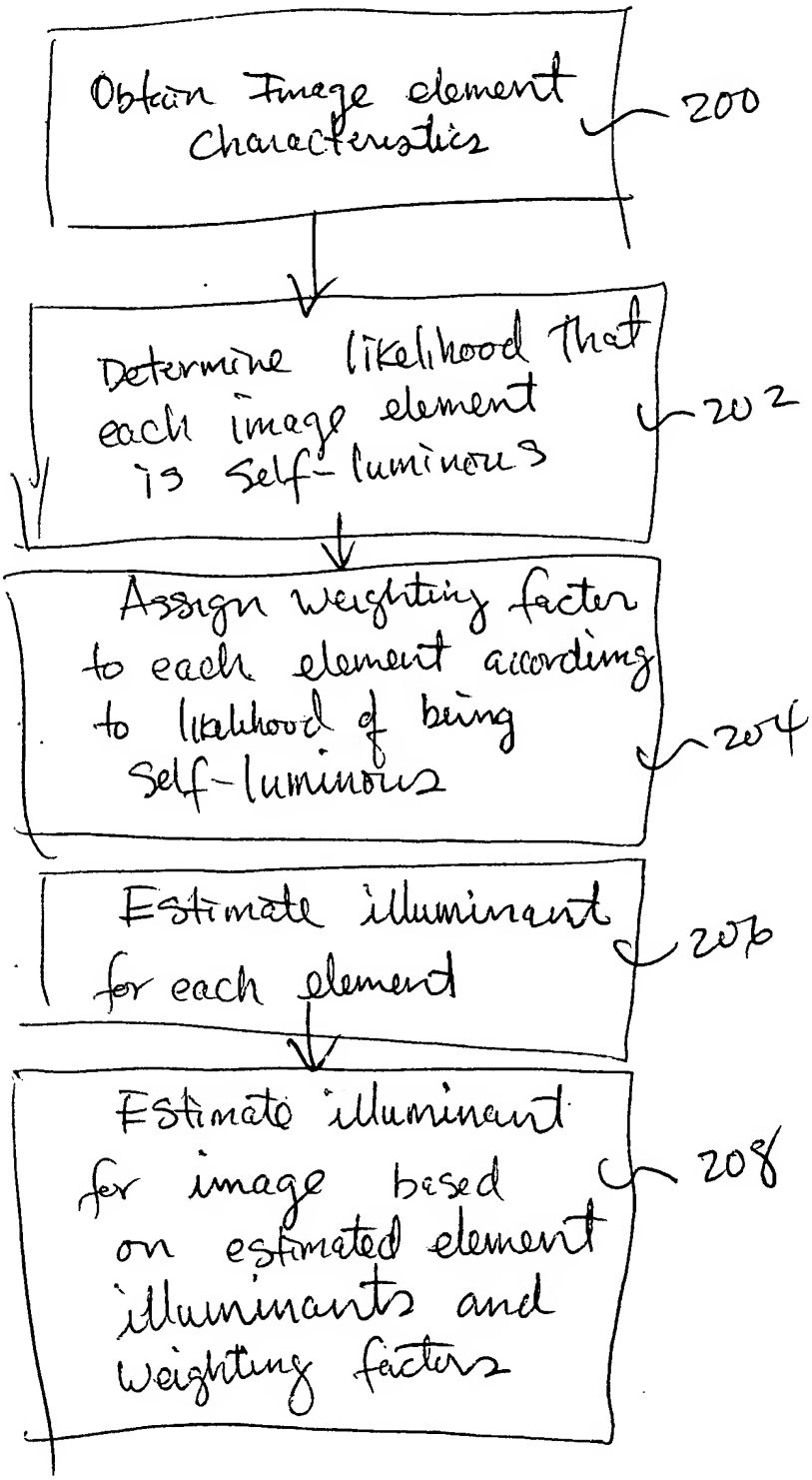

Obtain Image element Characteristics
200
Determine likelihood that each image element is self-luminous
202
Assign weighting factor to each element according to likelihood of being self-luminous
204
Estimate illuminant for each element
206
Estimate illuminant for image based on estimated element illuminants and weighting factors
208

Fig. 8

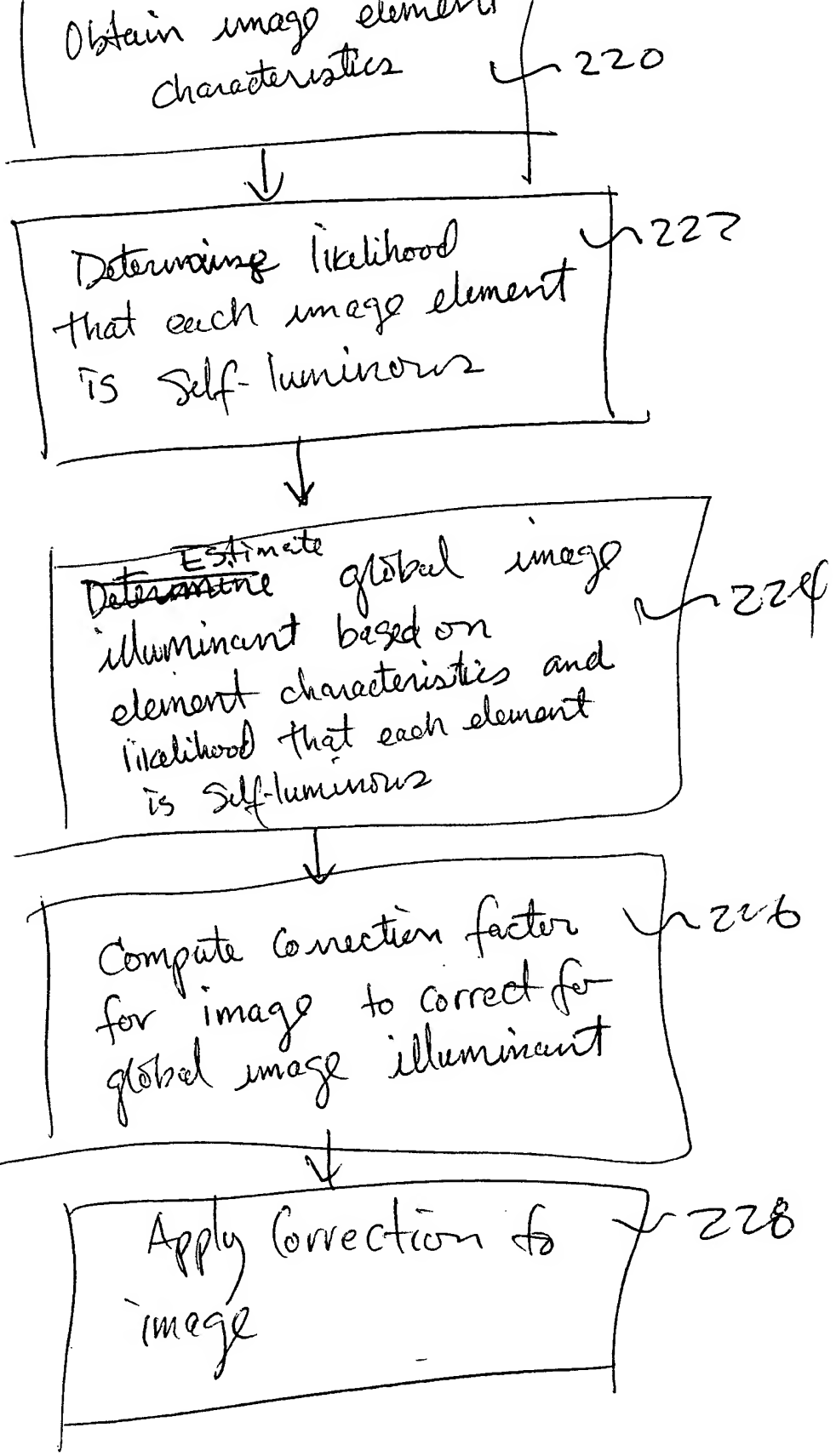

Obtain image element characteristics
220
Determining likelihood that each image element is self-luminous
222
Estimate
Determine global image illuminant based on element characteristics and likelihood that each element is self-luminous
224
Compute correction factor for image to correct for global image illuminant
226
Apply correction to image
228

Fig 9.

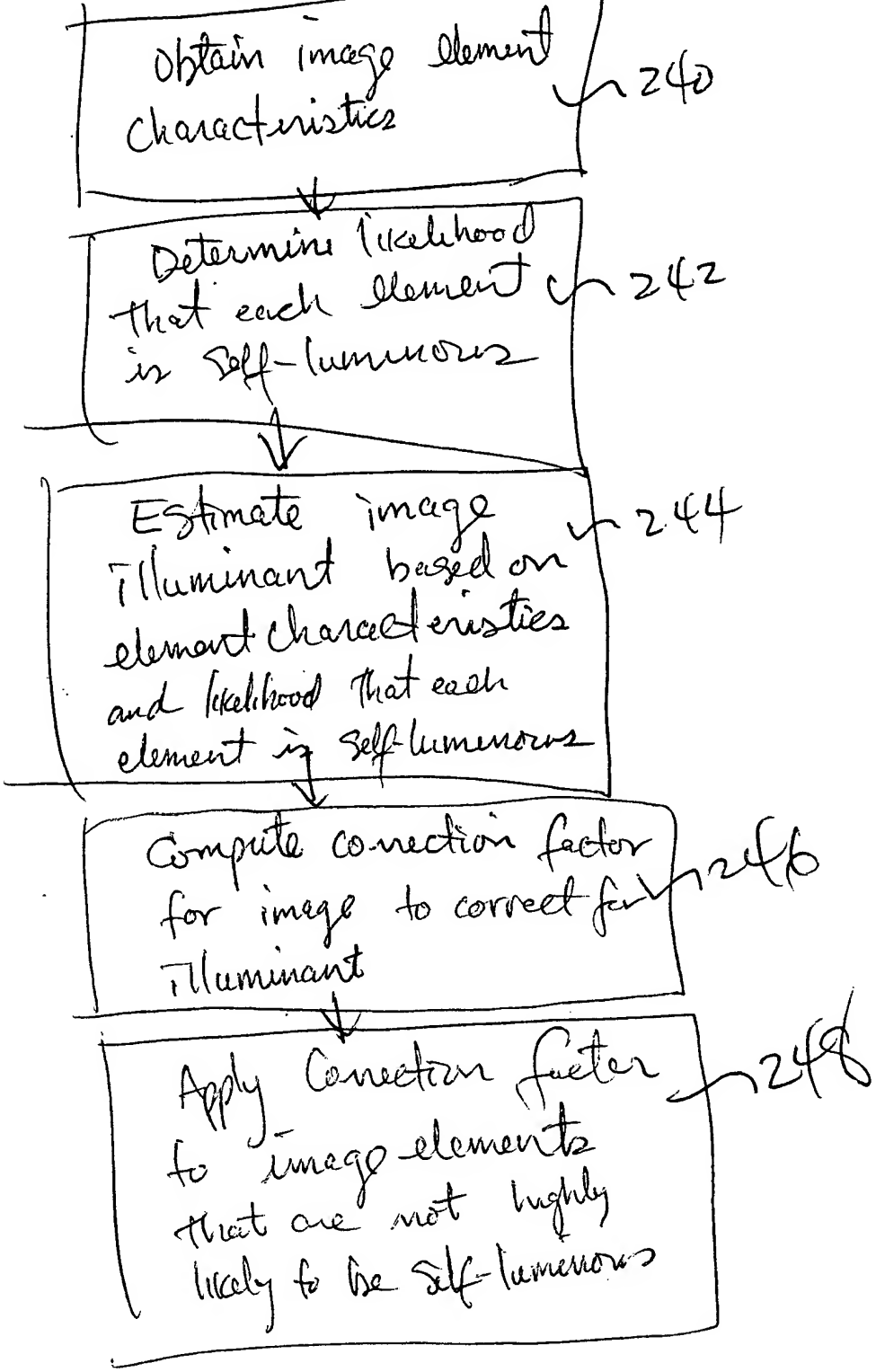

Obtain image element characteristics
240
Determine likelihood that each element is self-luminous
242
Estimate image Illuminant based on element characteristics and likelihood that each element is self-luminous
244
Compute correction factor for image to correct for Illuminant
246
Apply Correction factor to image elements that are not highly likely to be self-luminous
248

Fig. 10

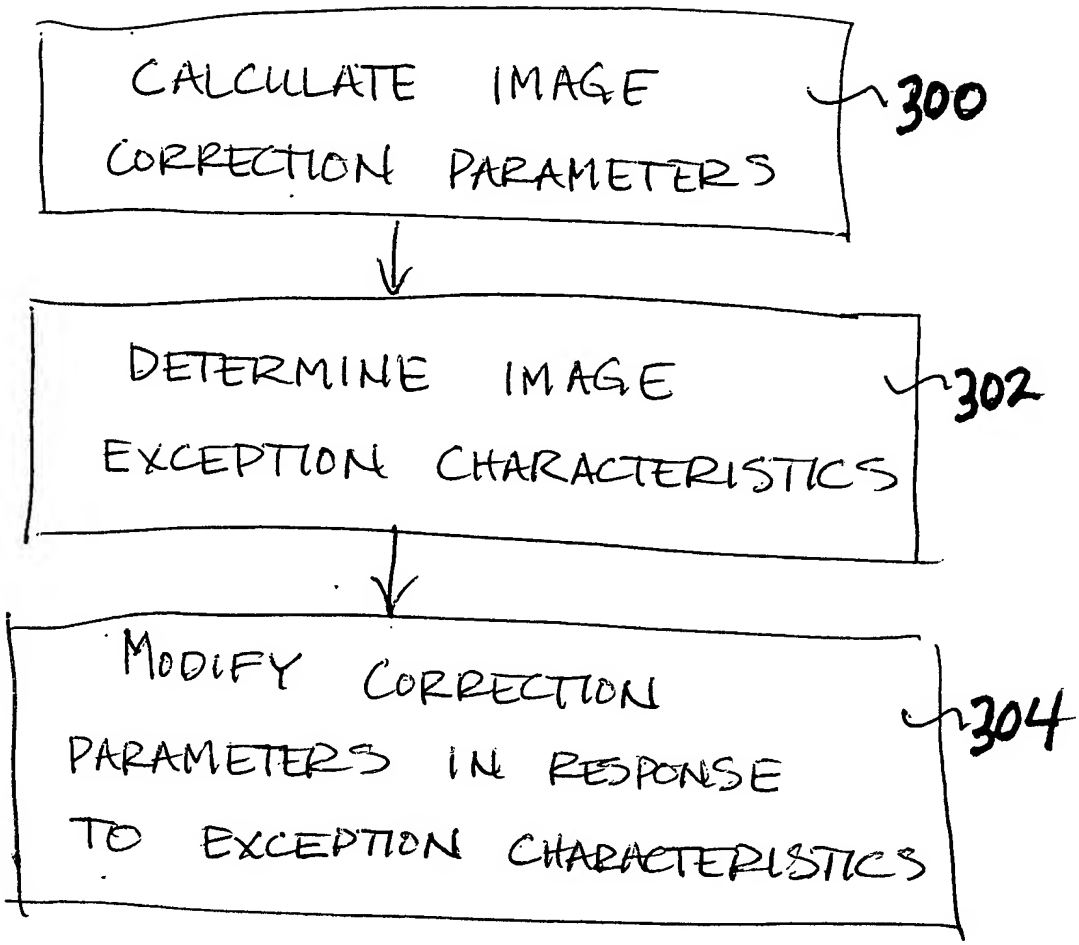

CALCULATE IMAGE CORRECTION PARAMETERS
300
DETERMINE IMAGE EXCEPTION CHARACTERISTICS
302
MODIFY CORRECTION PARAMETERS IN RESPONSE TO EXCEPTION CHARACTERISTICS
304

FIG. 11

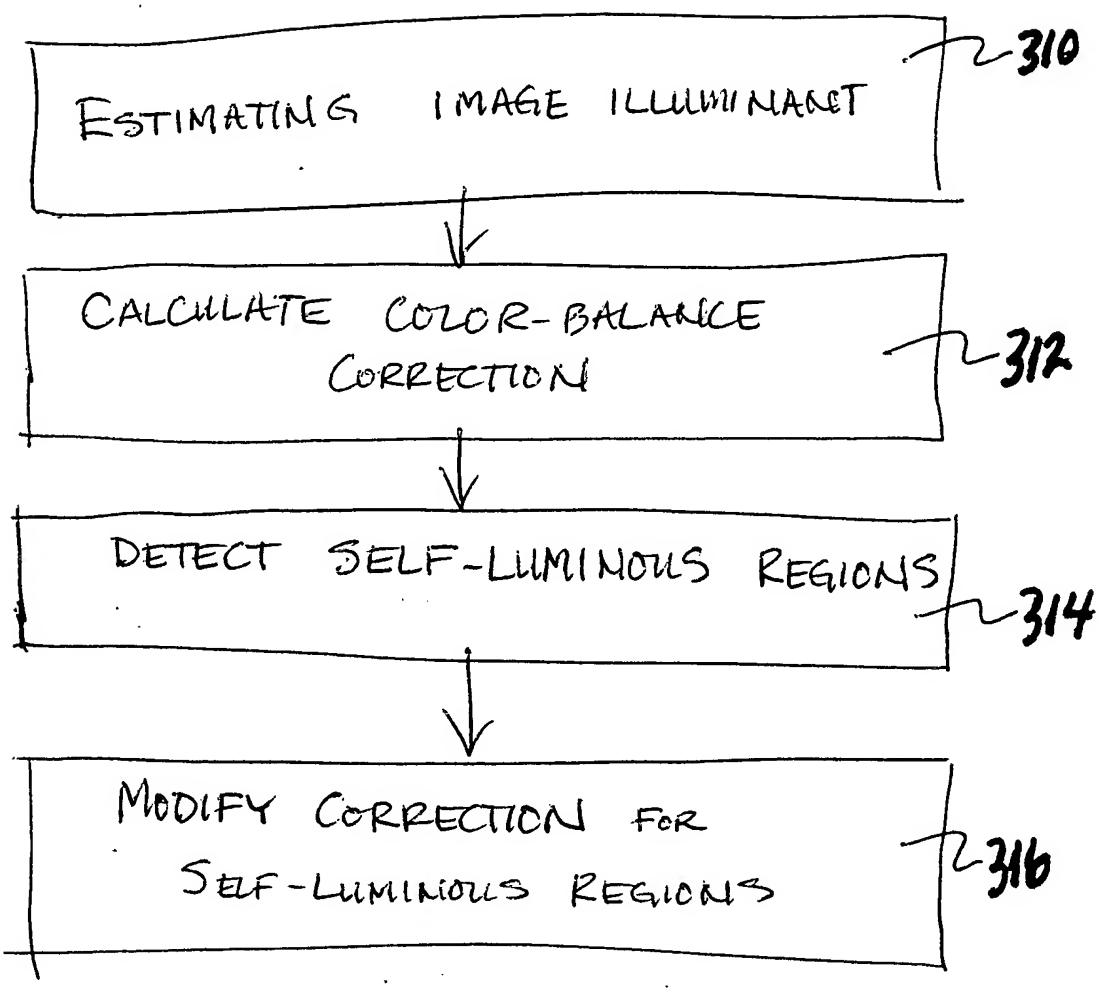

ESTIMATING IMAGE ILLUMINANT
310
CALCULATE COLOR-BALANCE CORRECTION
312
DETECT SELF-LUMINOUS REGIONS
314
MODIFY CORRECTION FOR SELF-LUMINOUS REGIONS
316

FIG. 12.

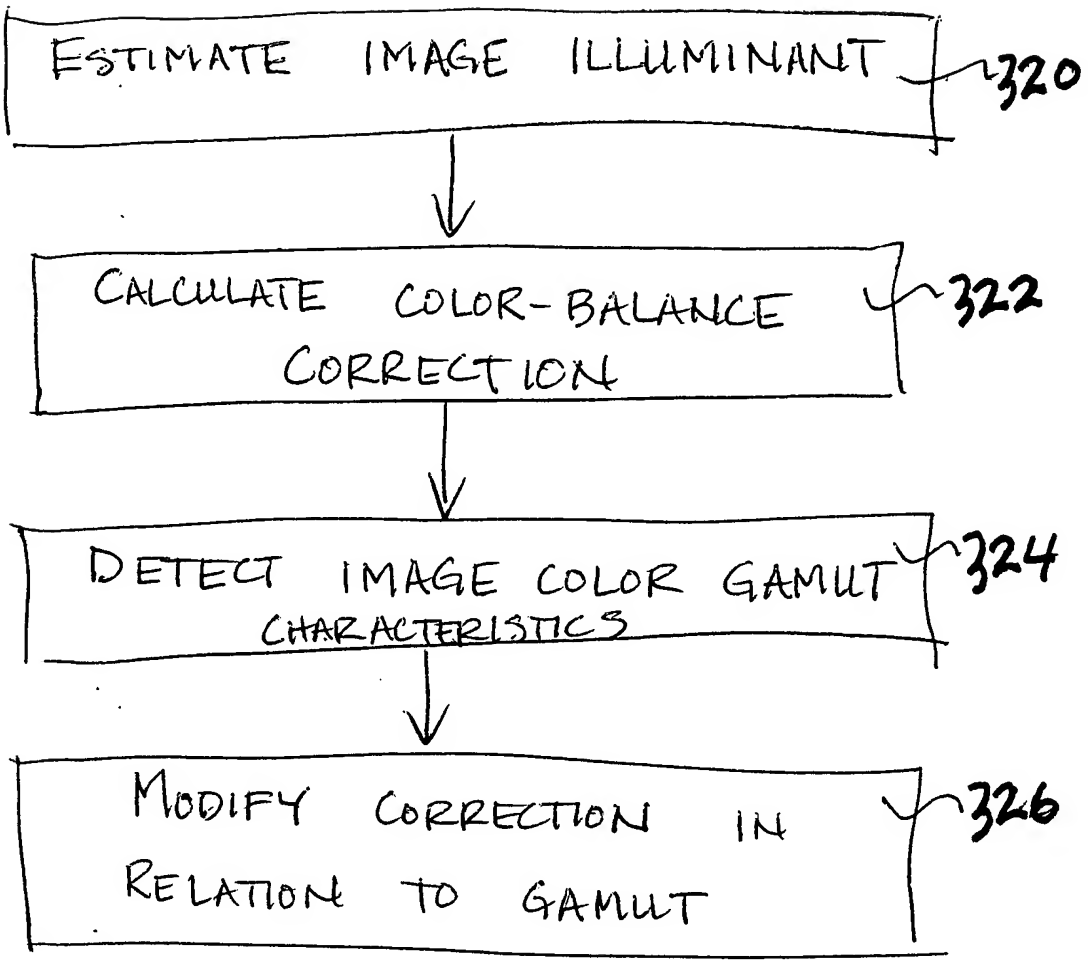

ESTIMATE IMAGE ILLUMINANT
320
CALCULATE COLOR-BALANCE CORRECTION
322
DETECT IMAGE COLOR GAMUT CHARACTERISTICS
324
MODIFY CORRECTION IN RELATION TO GAMUT
326

FIG. 13

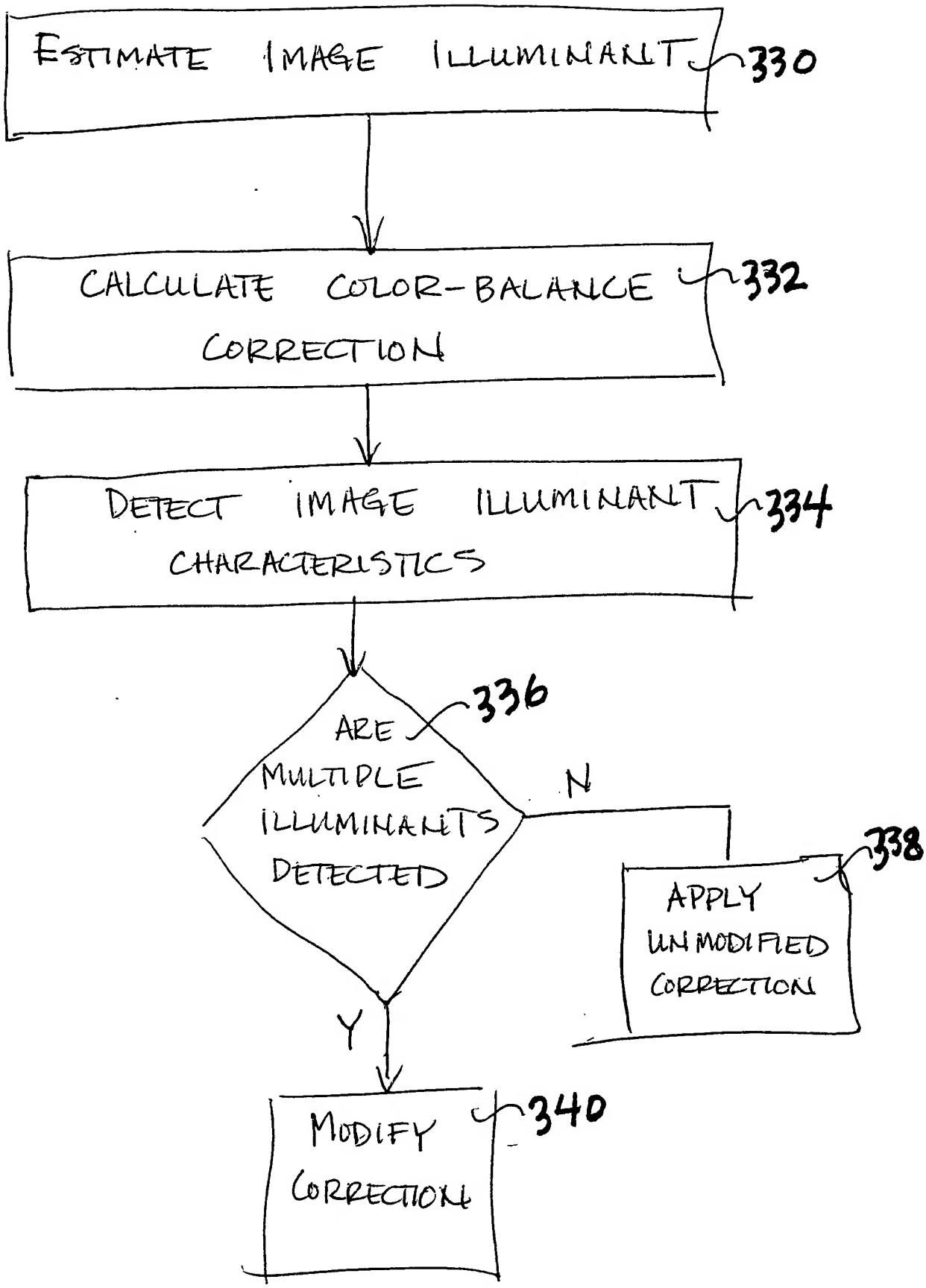

ESTIMATE IMAGE ILLUMINANT
330
CALCULATE COLOR-BALANCE CORRECTION
332
DETECT IMAGE ILLUMINANT CHARACTERISTICS
334
ARE MULTIPLE ILLUMINANTS DETECTED
336
N
APPLY UNMODIFIED CORRECTION
338
Y
MODIFY CORRECTION
340

FIG. 14

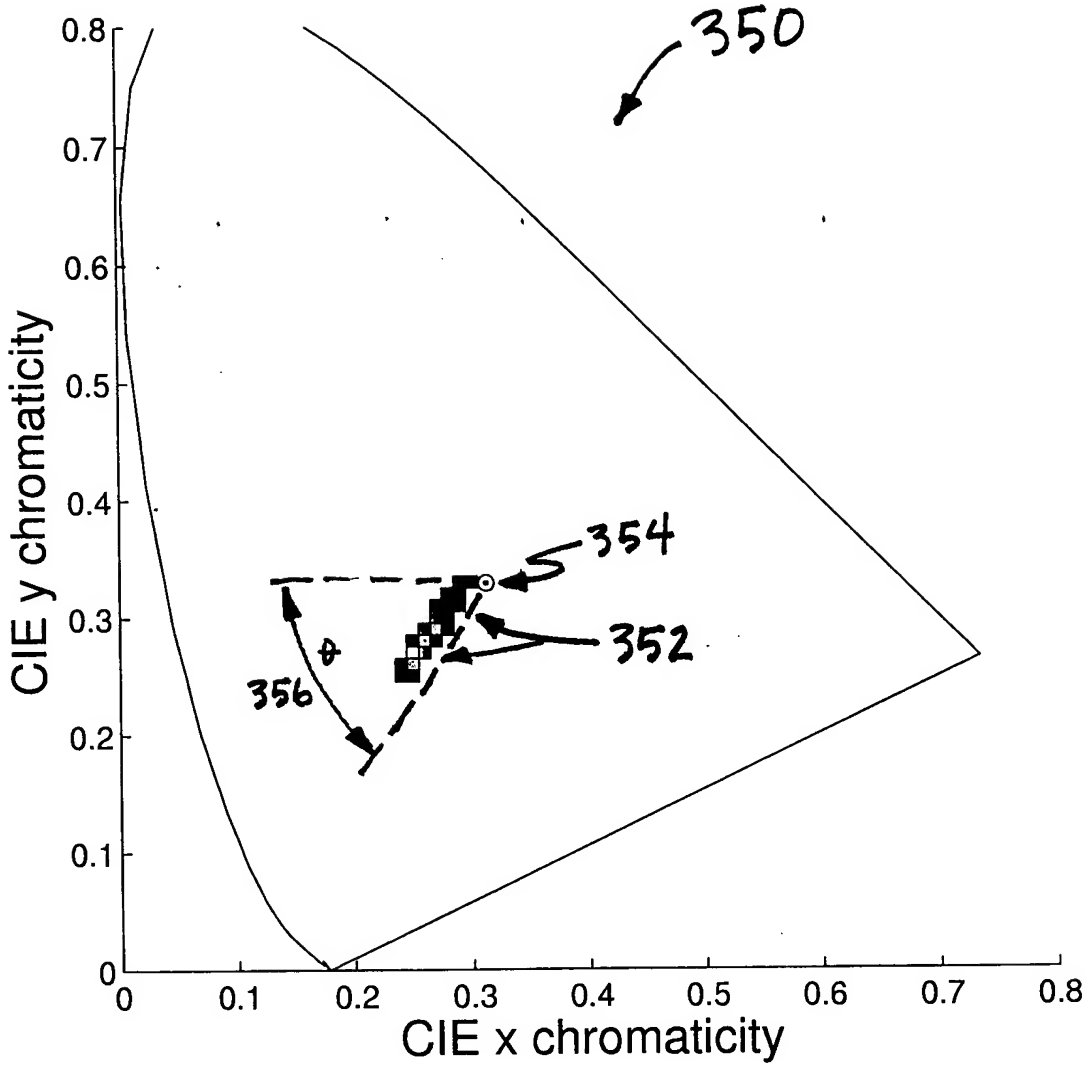

350
354
352
356
θ
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
CIE y chromaticity
CIE x chromaticity

FIG. 15

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